



DEPARTMENT OF PLANNING & BUILDING
BUILDING DIVISION
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CARPORT SPECIFICATIONS & DETAILS

FORM 4590

I. DEFINITION

A carport is a covered motor vehicle parking structure accessory to a single family dwelling or duplex. It may be freestanding or attached to another structure. A carport cannot exceed 1,000 square feet in area or one story in height and must be entirely open on two or more sides except for structural supports. There can be no enclosed use above a carport. Any structure which does not meet the above definition must comply with all regulations relating to a garage.

II. GENERAL PLAN DESIGN REQUIREMENTS:

- A. Carports must be entirely open on two or more sides.
- B. For carports within 6' of a dwelling, include a floor plan showing the use and dimensions of all rooms adjacent to the carport, and size and type of all windows and doors from those rooms.
- C. For carports proposed to be located less than 5' from the property line, the wall on the property line side is required to be constructed of one hour rated construction, without openings, from the foundation to underside of the roof sheathing. A rated wall is not required on the side of the carport adjacent to a street or alley.
- D. No fire protection is required for the common wall between a one- or two-family dwelling and a carport.
- E. Minimum headroom height from the floor of the carport to the bottom of the roof rafters is 7 feet and to the bottom of a roof beam or header is 6'-8".
- F. All electrical wiring and equipment should be shown or noted to comply with requirements governing exterior electrical installations.

III. STRUCTURAL REQUIREMENTS:

- A. Concrete mix for footings must meet a minimum compressive strength of $f'c = 2,500$ psi or the following proportions by volume; 1 part Portland cement, $2\frac{1}{2}$ parts sand, $3\frac{1}{2}$ parts of $\frac{3}{4}$ " maximum sized gravel and 7 gallons of water per sack of cement.
- B. Lumber must meet the following requirements
 - 1. Be of #2 Douglas fir-larch or better grade.
 - 2. Must be grade marked.
 - 3. Joists, girders and posts may be required to be protected against decay and termites.
 - 4. Posts must be 4" x 4" minimum nominal dimension.
- C. Posts must be anchored at the lower end and

braced on the upper end. Decorative type bracing may be substituted if similar resistance to lateral loading is provided.

- D. Carport posts and/or columns may be supported on slabs (minimum $3\frac{1}{2}$ " thickness) of not less than 2500 psi compressive strength, anchored with standard approved post base, installed per manufacturer's installation instructions. Pad footings are not required when the total load (live plus dead) does not exceed 750 pounds.
- F. Specify all proposed roof coverings on plans. If plastic roof coverings are used, they shall be installed such that the corrugations are perpendicular to and across the supports and be in accordance with the manufacturer's installation instructions.
- G. All roofs are required to slope at a minimum of $\frac{1}{4}$ " per foot for drainage purposes.
- H. If roof beams are to be supported by an existing exterior wall, either of the following attachments may be used:
 - 1. A ledger may be fastened to the studs with $\frac{1}{2}$ " x 5" lag screws spaced at 16" on center maximum if the rafter span is 30' - 0". The ledger shall be the same nominal dimension as the roof rafters.
 - 2. The rafters may be placed directly on the existing top plate of the wall.
 - 3. A ledger may be fastened to the studs with $\frac{1}{2}$ " x 5" lag screws spaced at 48" on center maximum if the rafter span is 10' - 0". The ledger shall be the same nominal dimension as the roof rafters.

IV. DESIGN LOADING

Carports are required to be designed to support all roof dead load plus a minimum vertical live load of 20 lbs/ft². In addition, they shall be designed to resist horizontal wind loads in accordance with the wind design criteria contained in Chapter 16, Part 2 of the California Building Code.

V. PLAN SUBMITTAL PACKAGE:

- A. Three plot plans. (See Form 2210, "HOW TO PREPARE A RESIDENTIAL PLOT PLAN".)
- B. Two copies of this form (highlight specific design parameters); or,
- C. Two copies of an International Code Council

Figure 1 / Typical carport construction

The diagram illustrates a 3D perspective view of a carport structure. It features a series of parallel main beams (B) supported by vertical posts (H). A ledger (A) is attached to the top of the beams. The structure is shown with a sloped roof and a base. Various dimensions and components are labeled: A (Ledger to unit attachment), B (Main Beam or Header), C (Secondary beam), D (Spacing between beams), E (Length of beam), F (Force or moment), G (Height of post), H (Post), I (Offset), J (Base), K (Width of base), L (Length of base).

LEGEND:

- A - Ledger to unit attachment (see Section III H)
- B - Main Beam or Header

- A - Ledger to unit attachment (see Section III H)
- B - Main Beam or Header
- C - Minimum of 18 ga. U-type hanger
- D - Continuous solid blocking between joists more than 6" in depth
- E - Rafter Span
- F - Concrete Slab
- G - 7'-0" minimum height
- H - Beam to Post connection (see Figure 4 of this page)
- I - Rafter spacing (center to center)
- J - Footing (see Footing detail illustration)
- K - Post spacing (center to center)
- L - 6" minimum distance from edge to post (typical)

Post

Metal BaseCap

1" min. above concrete or provide treated wood

8" minimum

12" minimum

2,500 psi concrete (minimum)

3" minimum

Natural Grade

a

Diagram illustrating a post-and-rail connection detail. The diagram shows a cross-section of a post passing through a metal base cap into a concrete foundation. The concrete is labeled as 2,500 psi concrete (minimum). The diagram includes dimensions for the concrete and the post above the cap. The concrete depth is labeled as 3" minimum. The post length above the cap is labeled as 8" minimum. The cap length above the concrete is labeled as 12" minimum. The cap is labeled as Metal BaseCap. The concrete is labeled as 2,500 psi concrete (minimum). The ground level is labeled as Natural Grade. The diagram also shows a dimension 'a' for the width of the concrete foundation.

Beam

7 ga steel "L" strap, 2 1/2" wide with 4 - 5/8" \varnothing bolts, 8" along beam, 12", along post. Or equivalent Post Cap.

Post

Diagram illustrating a beam-to-post connection using a 7 ga steel "L" strap. The strap is 2 1/2" wide and secured with 6 - 5/8" Ø bolts (3 along the beam, 3 along the post). The connection is labeled "Or equivalent Post Cap.".

- (ICC) approved plan available from your material supplier. Delete or cross-out details not applicable to the carport design; or,
- D. Two copies of special carport design. Specify roof covering, rafter spans, post spacings and footing details.

VI. INSPECTIONS:

An inspection card is issued at the time that the permit is obtained. The inspector signs the card as the construction is inspected and approved. The City of Chula Vista requires that the approved plans, Inspection Record Card and the permit be retained on the site until the final inspection has been approved. Two separate inspections are required: 1) Footings; when footings have been excavated but before concrete is placed, 2) When ledger beams are attached to an existing structure, and, final; when work is complete. Call (619) 409-5434 to schedule an inspection.

VII. TABLES:

The attached tables assume the following conditions:

- A. Roof live load is 20 psf

- B. Roof dead load is less than or equal to 7 psf (i.e. no concrete or clay tile).
- C. Lumber must be #2 DFL or better.
- D. Posts must be 4" x 4" minimum.
- E. Soil bearing capacity is maximum 1,000 psf.

Post spacing (ft)	MINIMUM "a" FOOTING SIZES (inches)							
	Rafter Span (ft) ^{1, 2, 3}							
	6	8	10	12	14	16	18	20
4	12"*	12"*	12"*	12"*	12"*	12"*	14"*	14"*
6	12"*	12"*	14"*	14"*	14"	14"	16"	16"
8	14"*	14"*	14"*	16"	16"	16"	18"	20"
10	14"*	16"*	16"	18"	18"	18"	20"	22"
12	16"*	16"	18"	20"	20"	20"	22"	24"
14	16"	18"	20"	20"	22"	22"	24"	24"
16	18"	20"	20"	22"	24"	24"	27"	27"
18	20"	20"	22"	24"	24"	24"	27"	30"
20	20"	22"	24"	24"	27"	27"	30"	30"

¹Roof live load = 20 psf; dead load = 7 psf

²All lumber to be Douglas Fir-Larch No. 2

³Roof total load exceeding 27 psf shall be design by a

California Registered Architect, Civil or Structural Engineer.

⁴ Provide 3/8" plywood sheathing at 12" & 16" rafter spacing, 1/2" plywood sheathing at 24" rafter spacing, and 5/8" plywood sheathing at 32" rafter spacing.

*Post may be supported by concrete slab as stated in Section III, Item D.

MINIMUM RAFTER SIZES ^{1, 2, 3}				
Rafter span (ft)	Rafter spacing (center to center)			
	12" ⁴	16" ⁴	24" ⁴	32" ⁴
6	2 x 4	2 x 4	2 x 4	2 x 6
7	2 x 4	2 x 4	2 x 6	2 x 6
8	2 x 4	2 x 6	2 x 6	2 x 6
9	2 x 6	2 x 6	2 x 6	2 x 6
10	2 x 6	2 x 6	2 x 6	2 x 8
11	2 x 6	2 x 6	2 x 8	2 x 8
12	2 x 8	2 x 8	2 x 8	2 x 8
13	2 x 8	2 x 8	2 x 8	2 x 10
14	2 x 8	2 x 8	2 x 10	2 x 10
15	2 x 8	2 x 10	2 x 10	2 x 12
16	2 x 10	2 x 10	2 x 12	2 x 12
17	2 x 10	2 x 12	2 x 12	2 x 12
18	2 x 10	2 x 12	2 x 12	2 x 12
19	2 x 12	2 x 12	2 x 12	2 x 14
20	2 x 12	2 x 12	2 x 12	2 x 14

Post spacing (ft)	MINIMUM BEAM SIZES ^{1, 2, 3}							
	Rafter Span (ft)							
	6	8	10	12	14	16	18	20
4	4 x 4	4 x 4	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6
6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6
8	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 6	4 x 8	4 x 8
10	4 x 6	4 x 6	4 x 8	4 x 8	4 x 8	4 x 8	4 x 8	4 x 8
12	4 x 8	4 x 8	4 x 8	4 x 8	4 x 10	4 x 10	4 x 10	4 x 10
14	4 x 8	4 x 10	4 x 10	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12
16	4 x 10	4 x 10	4 x 12	4 x 12	4 x 12	4 x 12	4 x 14	4 x 14
18	4 x 10	4 x 12	4 x 12	4 x 14	4 x 14	4 x 14	4 x 16	4 x 16
20	4 x 12	4 x 14	4 x 14	4 x 16	4 x 16	4 x 16		